CLAIMS

[1] A process for production of trialkoxyhalosilanes, which comprises reacting a tetrahalosilane represented by Formula 1 with a tetraalkoxysilane represented by Formula 2 in the mixture of an alcohol composed of the same alkoxy group as that of the tetraalkoxysilane to yield a trialkoxyhalosilane represented by Formula 3, wherein the alcohol is used in an amount of 5-50 % by mol based on a total amount of Si in the tetrahalosilane and the tetraalkoxysilane:

[Formula 1]

SiX_4

(where X denotes halogen)

[Formula 2]

$Si(OR^1)_4$

(where R^1 denotes a hydrocarbon group having 1-6 carbon atoms)

[Formula 3]

$XSi(OR^1)_3$

(where X denotes halogen; and R^1 a hydrocarbon group having 1-6 carbon atoms).

[2] The process for production of trialkoxyhalosilanes according to claim 1, wherein a molar quantity of the tetraalkoxysilane in use is more than three times the molar quantity of the tetrahalosilane in use.

[3] The process for production of trialkoxyhalosilanes according to claim 1 or 2, wherein X is chlor and R^1 is ethyl in the compound represented by Formulae 1-3.

[4] A process for production of trialkoxyhalosilanes, which comprises reacting a tetrahalosilane represented by Formula 4 with an alcohol represented by Formula 5 at a controlled temperature of 40 °C or below to yield a trialkoxyhalosilane represented by Formula 6:

[Formula 4]

SiX_4

(where X denotes halogen)

[Formula 5]

R^1OH

(where R^1 denotes a hydrocarbon group having 1-6 carbon atoms)

[Formula 6]

$XSi(OR^1)_3$

(where X denotes halogen; and R^1 a hydrocarbon group having 1-6 carbon atoms).

[5] The process for production of trialkoxyhalosilanes according to claim 4, wherein the reaction of the tetrahalosilane with the alcohol is performed in the presence of an acid catalyst.

[6] The process for production of trialkoxyhalosilanes according to claim 5, wherein the acid catalyst is a hydrogen halide secondarily produced in the reaction.

[7] The process for production of trialkoxyhalosilanes according to any one of claims 4-6, wherein X is chlor and R^1 is ethyl in the compound represented by Formulae 4-6.

[8] A process for production of trialkoxy(dialkylamino) silanes, which comprises a first step including the process for production of trialkoxyhalosilanes according to any one of claims 1-3; and a second step of reacting the trialkoxy halosilane obtained in the first step with a dialkylamine represented by Formula 7 to yield a trialkoxy(dialkylamino) silane represented by Formula 8:

[Formula 7]

R^2R^3NH

(where R^2 denotes a hydrocarbon group having 1-12 carbon atoms; and R^3 a hydrocarbon group having 1-12 carbon atoms)

[Formula 8]

$R^2R^3NSi(OR^1)_3$

(where R^1 denotes a hydrocarbon group having 1-6 carbon atoms; R^2 a hydrocarbon group having 1-12 carbon atoms; and R^3 a hydrocarbon group having 1-12 carbon atoms).

[9] The process for production of trialkoxy(dialkylamino) silanes according to claim 8, wherein the reacted mixture obtained in the first step is reacted with the dialkylamine represented by Formula 7, without subjecting to isolation/ purification.

[10] The process for production of trialkoxy(dialkylamino) silanes according to claim 8 or 9, wherein X is chlor and R^1, R^2 and R^3 are ethyl in the compound represented by Formulae 1-8.

[11] A catalyst component for polymerization or copolymerization catalysts of α-olefins, which comprises a mixture of silane compounds represented by Formulae 9 and 10:

[Formula 9]

$Si(OR^1)_3R^2$

(where R^1 denotes a hydrocarbon group having 2-6 carbon atoms; and R^2 a hydrocarbon group having 1-12 carbon atoms, an amino group including a hydrogen atom and a hydrocarbon group having 1-12 carbon atoms, which are bonded on a N atom, or an amino group including two hydrocarbon groups each having 1-12 carbon atoms, which are bonded on a N atom (the two hydrocarbon groups may be the same or different from each other))

[Formula 10]

SiR^3_4

(where R^3 denotes an alkoxy group having 1-6 carbon atoms, a hydrocarbon group having 1-12 carbon atoms, an amino group including a hydrogen atom and a hydrocarbon group having 1-12 carbon atoms, which are bonded on a N atom, or an amino group including two hydrocarbon groups each having 1-12 carbon atoms,

which are bonded on a N atom (the two hydrocarbon groups may be the same or different from each other). Each R^3 may be the same as or different from another. Formulae 9 and 10 do not represent the same compound).

[12] A catalyst component for polymerization or copolymerization catalysts of α-olefins, which comprises a mixture of silane compounds represented by Formulae 11 and 12:

[Formula 11]

$$Si(OR^1)_3(NR^4R^5)$$

(where R^1 denotes a hydrocarbon group having 2-6 carbon atoms; R^4 a hydrocarbon group having 1-12 carbon atoms, or a hydrogen atom; and R^5 a hydrocarbon group having 1-12 carbon atoms)

[Formula 12]

$$Si(R^6)_n(NR^7R^8)_{4-n}$$

(where R^6 denotes a hydrocarbon group having 1-12 carbon atoms or an alkoxy group having 1-6 carbon atoms (each R^6 may be the same as or different from another); R^7 a hydrocarbon group having 1-12 carbon atoms; R^8 a hydrocarbon group having 1-12 carbon atoms; and n is equal to 1-2 or 4).

[13] The catalyst component for polymerization or copolymerization catalysts of α-olefins according to claim 11 or 12, wherein the silane compound represented by Formulae 9-12 is obtained by reacting a tetrahalosilane represented by Formula 13 with a tetraalkoxysilane represented by Formula 14 to yield a trialkoxyhalosilane represented by Formula 15, which is then reacted with a dialkylamine represented by Formula 16:

[Formula 13]

$$SiX_4$$

(where X denotes halogen)

[Formula 14]

$Si(OR^1)_4$

(where R^1 denotes a hydrocarbon group having 2-6 carbon atoms)

[Formula 15]

$XSi(OR^1)_3$

(where X denotes halogen; and R^1 a hydrocarbon group having 2-6 carbon atoms)

[Formula 16]

R^2R^3NH

(where R^2 denotes a hydrocarbon group having 1-12 carbon atoms; and R^3 a hydrocarbon group having 1-12 carbon atoms).

[14] A catalyst component for polymerization or copolymerization catalysts of α-olefins, which comprises a mixture of a diethylaminotriethoxysilane and a bis(diethylamino)diethoxysilane.

[15] A polymerization or copolymerization catalyst of α-olefins, which includes the catalyst component according to any one of claims 11-14.

[16] A polymerization or copolymerization catalyst of α-olefins, which comprises [A] a solid catalyst component essentially including magnesium, titanium, a halogen element and an electron donor; [B] an organoaluminum compound component; and [C] the catalyst component according to any one of claims 11-14.

[17] A process for polymerization of α-olefins, which comprises polymerizing or copolymerizing an α-olefin in the presence of the catalyst according to claim 15 or 16.

[18] A catalyst component for polymerization or copolymerization catalysts of α-olefins, which comprises a reacted mixture of a trialkoxyhalosilane represented by Formula 17 with a dialkylamine represented by Formula 18:

[Formula 17]

$XSi(OR^1)_3$

(where X denotes halogen; and R^1 denotes a hydrocarbon group having 2-6 carbon atoms)

[Formula 18]

R^2R^3NH

(where R^2 denotes a hydrocarbon group having 1-12 carbon atoms; and R^3 a hydrocarbon group having 1-12 carbon atoms).

[19] A polymerization or copolymerization catalyst of α-olefins, which includes the catalyst component according to claim 18.

[20] A polymerization or copolymerization catalyst of α-olefins, which comprises [A] a solid catalyst component essentially including magnesium, titanium, a halogen element and an electron donor; [B] an organoaluminum compound component; and [C] the catalyst component according to claim 18.

[21] The polymerization or copolymerization catalyst of α-olefins according to any one of claims 19-20, wherein the reacted mixture of the trialkoxyhalosilane represented by Formula 17 with the dialkylamine represented by Formula 18 is employed without subjecting to isolation/purification.

[22] A process for polymerization of α-olefins, which comprises polymerizing or copolymerizing an α-olefin in the presence of the catalyst according to any one of claims 19-21.